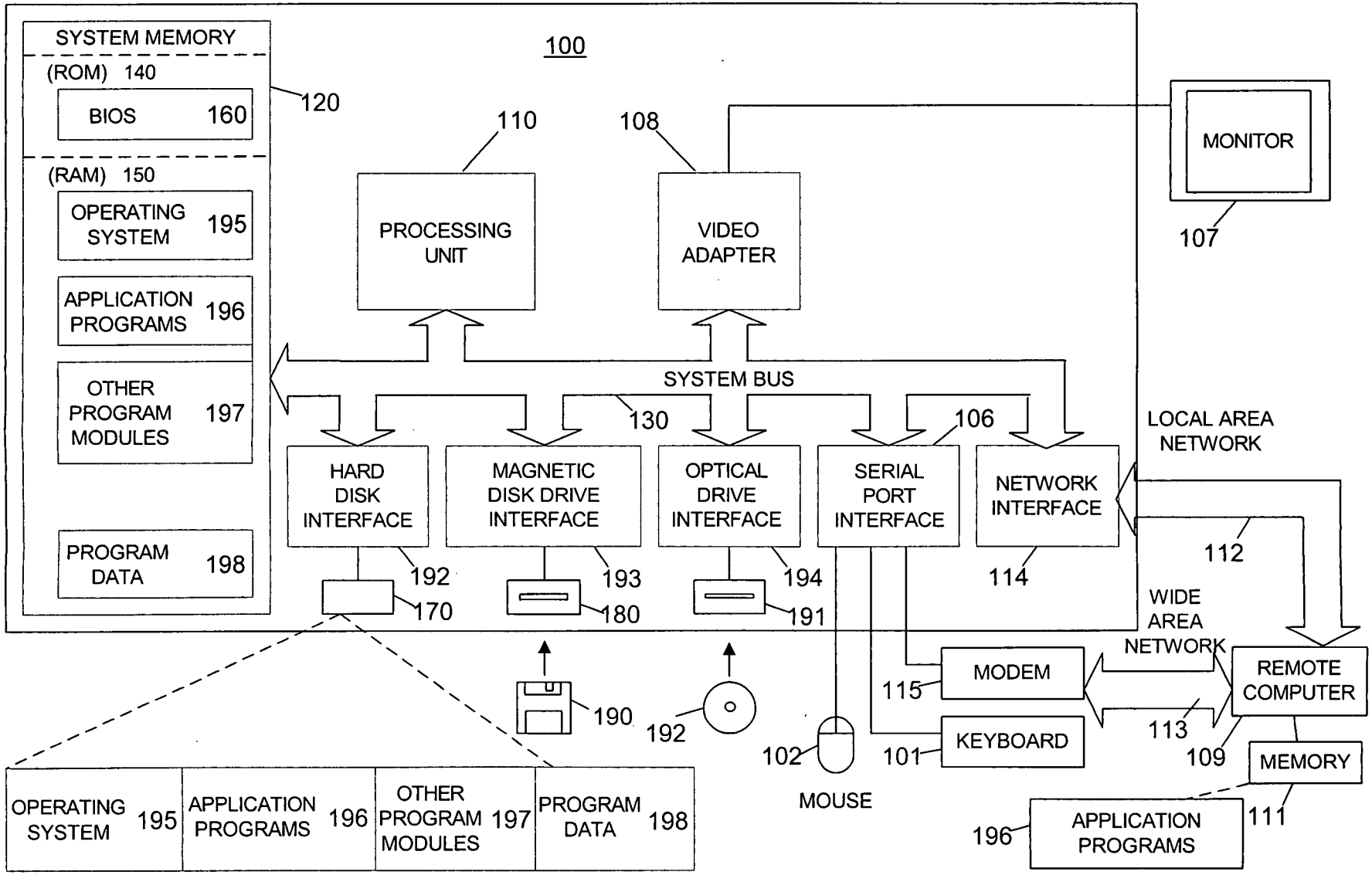

SYSTEM MEMORY
(ROM) 140
BIOS 160
120
(RAM) 150
OPERATING SYSTEM 195
APPLICATION PROGRAMS 196
OTHER PROGRAM MODULES 197
PROGRAM DATA 198
100
110
PROCESSING UNIT
108
VIDEO ADAPTER
MONITOR
107
SYSTEM BUS
130
106
LOCAL AREA NETWORK
HARD DISK INTERFACE
MAGNETIC DISK DRIVE INTERFACE
OPTICAL DRIVE INTERFACE
SERIAL PORT INTERFACE
NETWORK INTERFACE
112
192
193
194
114
170
180
191
WIDE AREA NETWORK
190
192
MODEM
115
REMOTE COMPUTER
102
101
KEYBOARD
113
109
MEMORY
MOUSE
111
196
APPLICATION PROGRAMS
OPERATING SYSTEM 195
APPLICATION PROGRAMS 196
OTHER PROGRAM MODULES 197
PROGRAM DATA 198

Figure 1

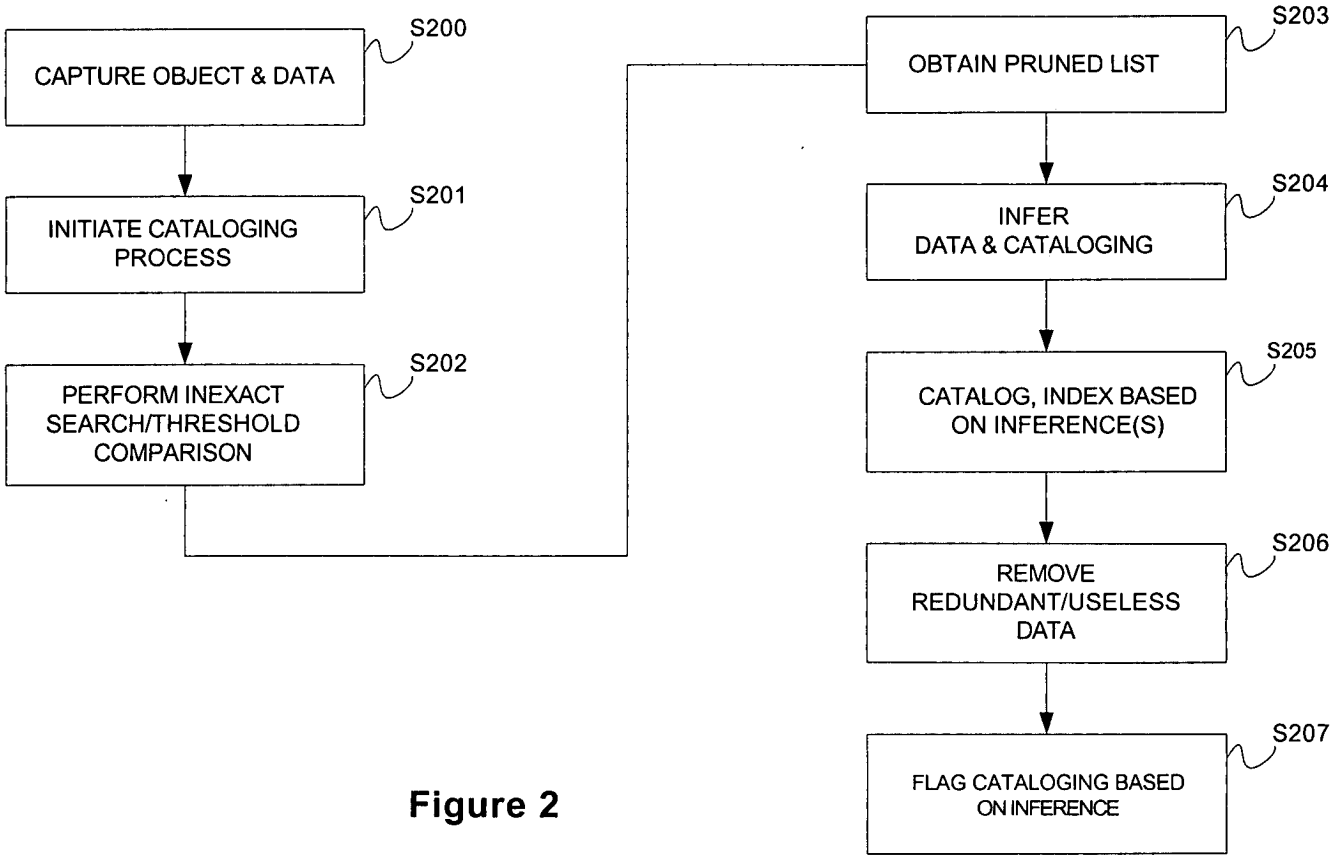

CAPTURE OBJECT & DATA
S200
INITIATE CATALOGING PROCESS
S201
PERFORM INEXACT SEARCH/THRESHOLD COMPARISON
S202
OBTAIN PRUNED LIST
S203
INFER DATA & CATALOGING
S204
CATALOG, INDEX BASED ON INFERENCE(S)
S205
REMOVE REDUNDANT/USELESS DATA
S206
FLAG CATALOGING BASED ON INFERENCE
S207

Figure 2

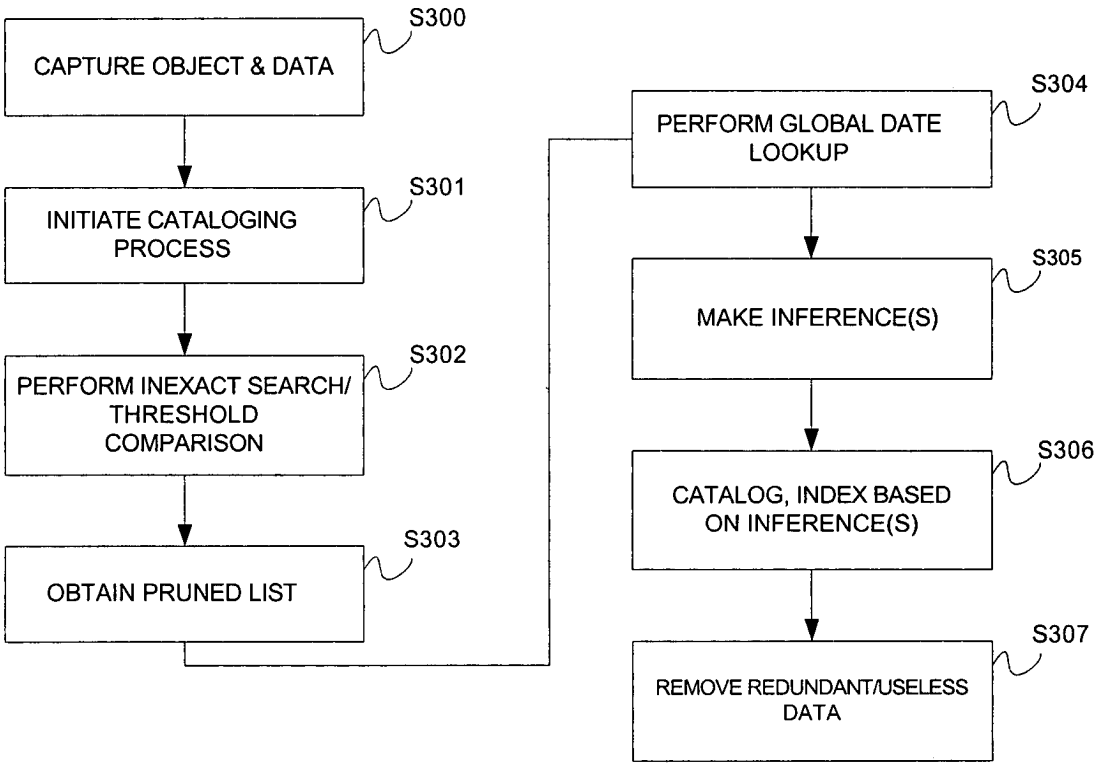
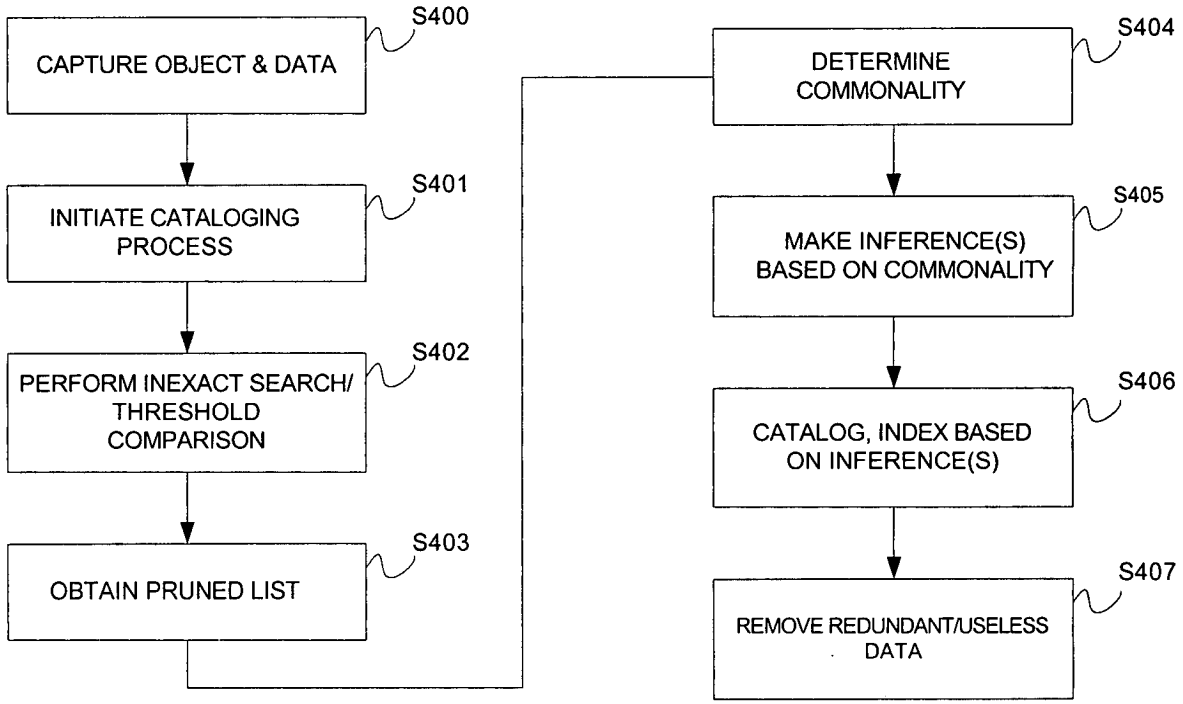

S300
CAPTURE OBJECT & DATA
S301
INITIATE CATALOGING PROCESS
S302
PERFORM INEXACT SEARCH/ THRESHOLD COMPARISON
S303
OBTAIN PRUNED LIST
S304
PERFORM GLOBAL DATE LOOKUP
S305
MAKE INFERENCE(S)
S306
CATALOG, INDEX BASED ON INFERENCE(S)
S307
REMOVE REDUNDANT/USELESS DATA

Figure 3

Figure 4


CAPTURE OBJECT & DATA
S400
INITIATE CATALOGING PROCESS
S401
PERFORM INEXACT SEARCH/ THRESHOLD COMPARISON
S402
OBTAIN PRUNED LIST
S403
DETERMINE COMMONALITY
S404
MAKE INFERENCE(S) BASED ON COMMONALITY
S405
CATALOG, INDEX BASED ON INFERENCE(S)
S406
REMOVE REDUNDANT/USELESS DATA
S407

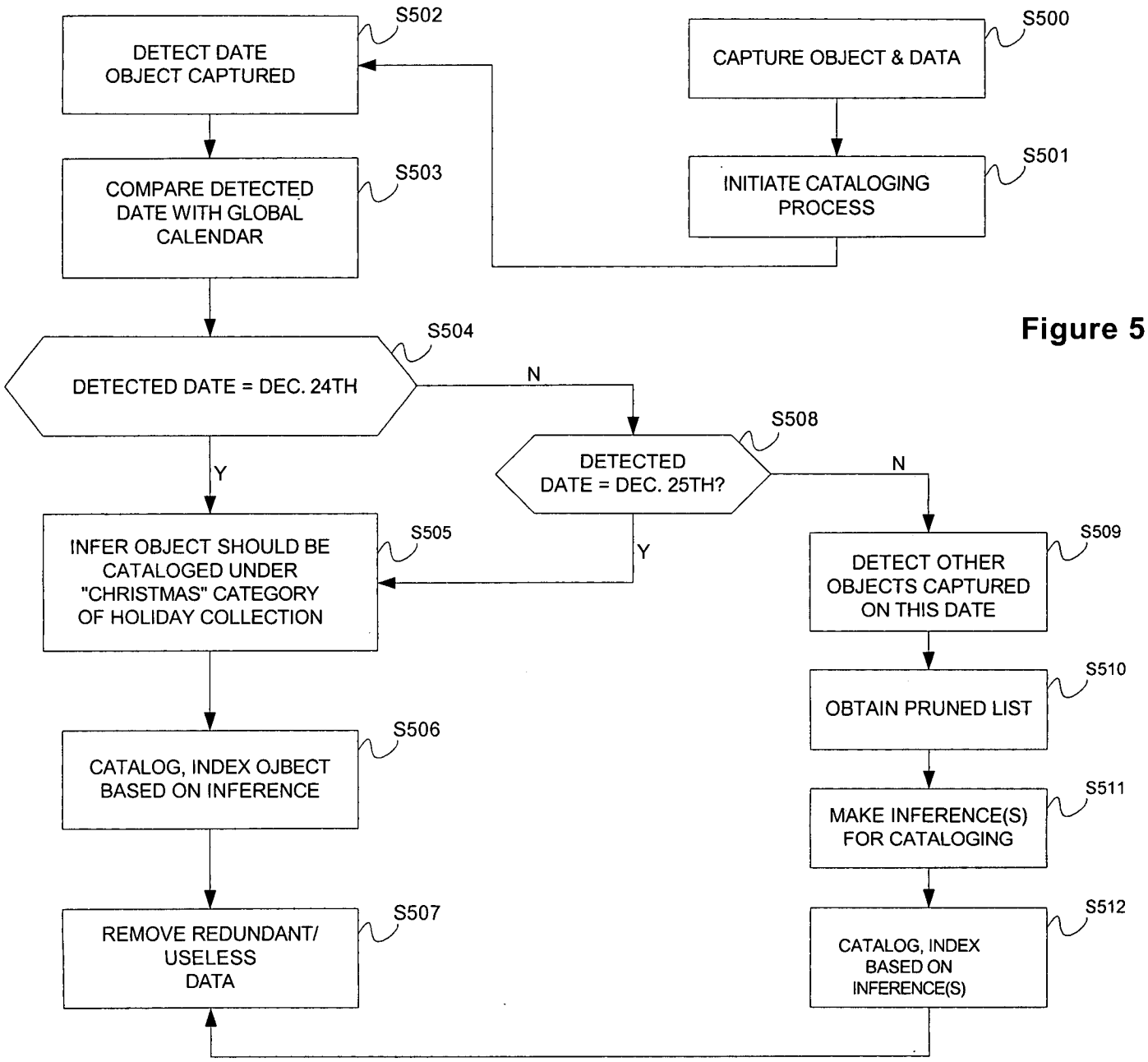

S500
CAPTURE OBJECT & DATA
S501
INITIATE CATALOGING PROCESS
S502
DETECT DATE OBJECT CAPTURED
S503
COMPARE DETECTED DATE WITH GLOBAL CALENDAR
S504
DETECTED DATE = DEC. 24TH
N
Y
S505
INFER OBJECT SHOULD BE CATALOGED UNDER "CHRISTMAS" CATEGORY OF HOLIDAY COLLECTION
S506
CATALOG, INDEX OJBECT BASED ON INFERENCE
S507
REMOVE REDUNDANT/ USELESS DATA
S508
DETECTED DATE = DEC. 25TH?
N
Y
S509
DETECT OTHER OBJECTS CAPTURED ON THIS DATE
S510
OBTAIN PRUNED LIST
S511
MAKE INFERENCE(S) FOR CATALOGING
S512
CATALOG, INDEX BASED ON INFERENCE(S)

Figure 5

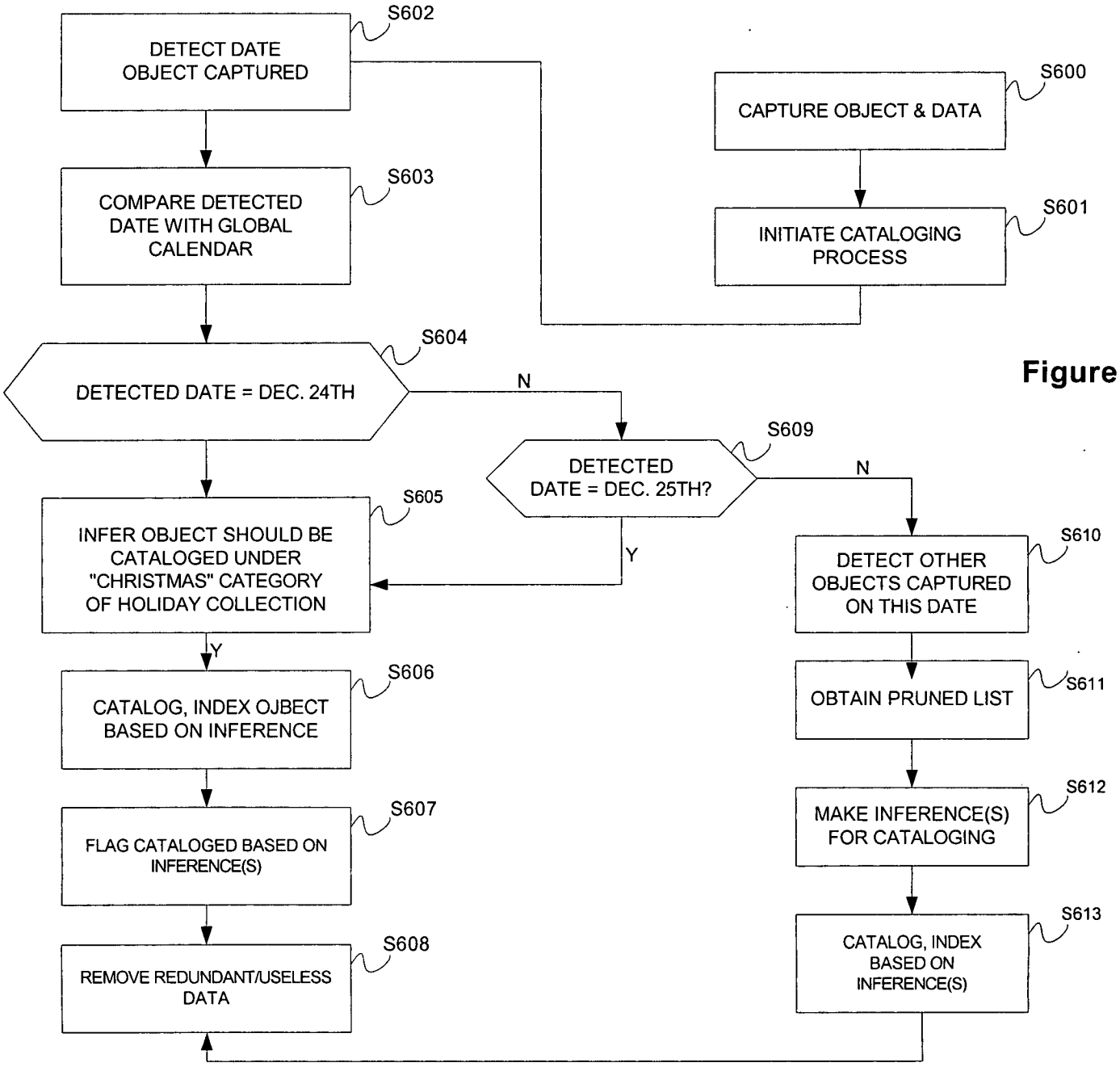

S602
DETECT DATE OBJECT CAPTURED
S600
CAPTURE OBJECT & DATA
S603
COMPARE DETECTED DATE WITH GLOBAL CALENDAR
S601
INITIATE CATALOGING PROCESS
S604
DETECTED DATE = DEC. 24TH
N
S609
DETECTED DATE = DEC. 25TH?
N
S605
INFER OBJECT SHOULD BE CATALOGED UNDER "CHRISTMAS" CATEGORY OF HOLIDAY COLLECTION
Y
Y
S610
DETECT OTHER OBJECTS CAPTURED ON THIS DATE
S606
CATALOG, INDEX OJBECT BASED ON INFERENCE
S611
OBTAIN PRUNED LIST
S607
FLAG CATALOGED BASED ON INFERENCE(S)
S612
MAKE INFERENCE(S) FOR CATALOGING
S608
REMOVE REDUNDANT/USELESS DATA
S613
CATALOG, INDEX BASED ON INFERENCE(S)

Figure 6

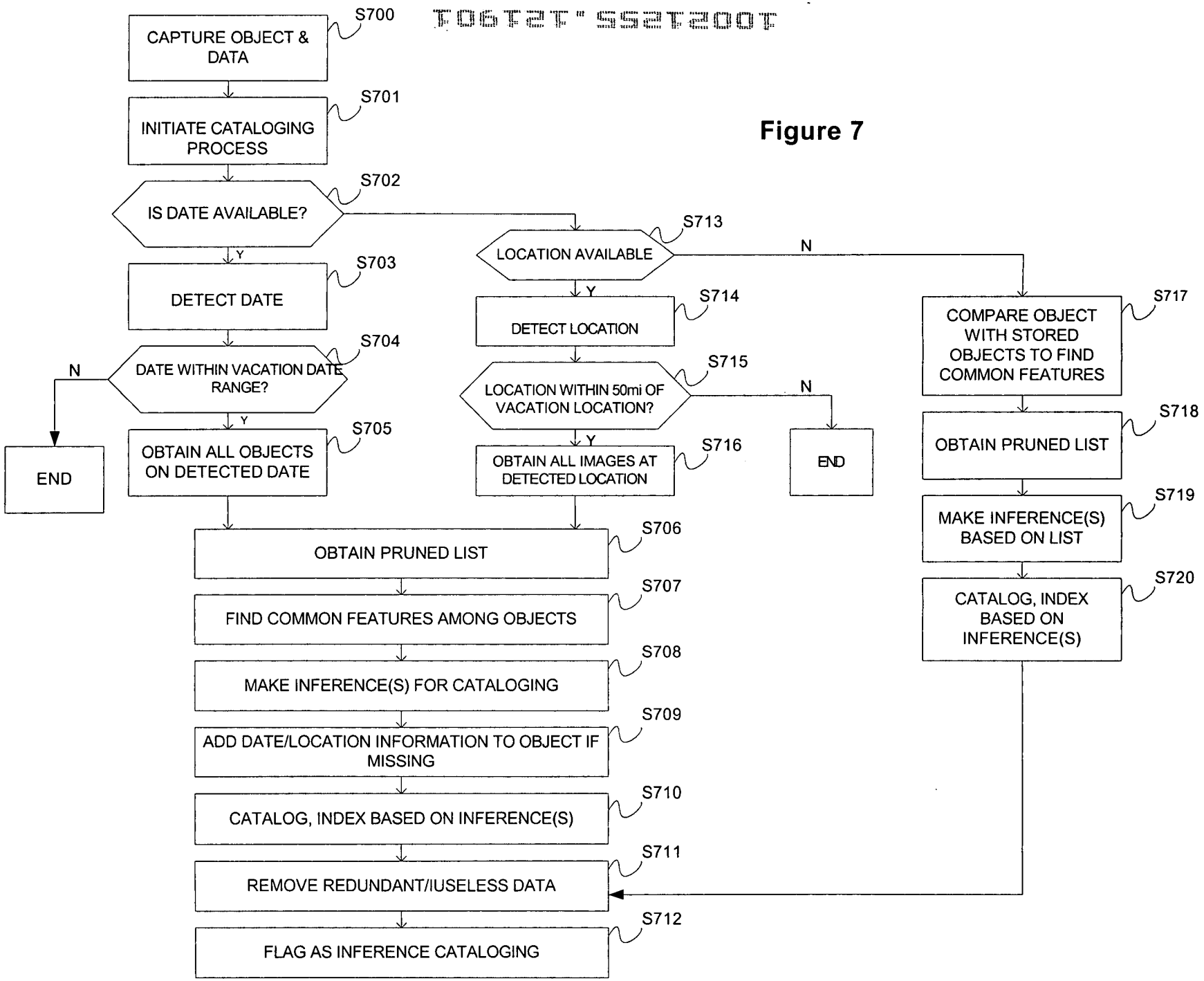

S700
CAPTURE OBJECT & DATA
S701
INITIATE CATALOGING PROCESS
S702
IS DATE AVAILABLE?
Y
S703
DETECT DATE
S704
DATE WITHIN VACATION DATE RANGE?
N
END
Y
S705
OBTAIN ALL OBJECTS ON DETECTED DATE
S713
LOCATION AVAILABLE
N
Y
S714
DETECT LOCATION
S715
LOCATION WITHIN 50mi OF VACATION LOCATION?
N
END
Y
S716
OBTAIN ALL IMAGES AT DETECTED LOCATION
S717
COMPARE OBJECT WITH STORED OBJECTS TO FIND COMMON FEATURES
S718
OBTAIN PRUNED LIST
S719
MAKE INFERENCE(S) BASED ON LIST
S720
CATALOG, INDEX BASED ON INFERENCE(S)
S706
OBTAIN PRUNED LIST
S707
FIND COMMON FEATURES AMONG OBJECTS
S708
MAKE INFERENCE(S) FOR CATALOGING
S709
ADD DATE/LOCATION INFORMATION TO OBJECT IF MISSING
S710
CATALOG, INDEX BASED ON INFERENCE(S)
S711
REMOVE REDUNDANT/IUSELESS DATA
S712
FLAG AS INFERENCE CATALOGING

Figure 7

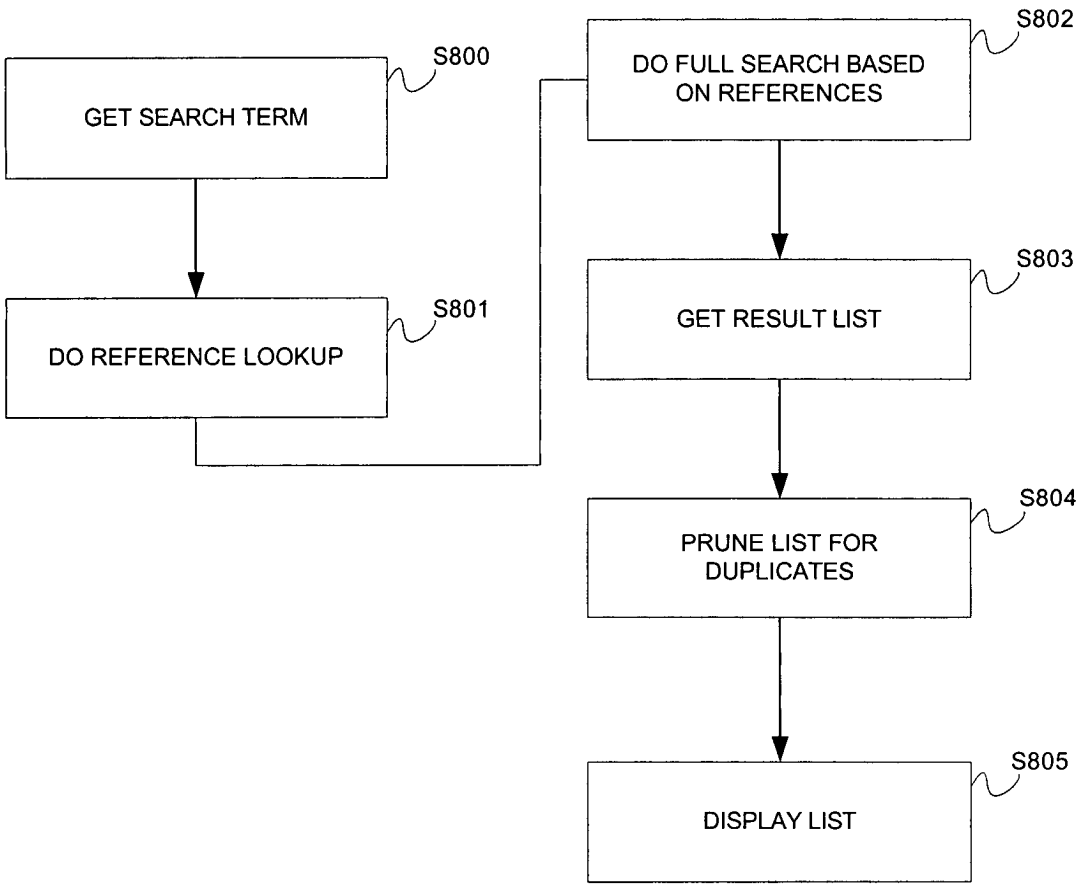
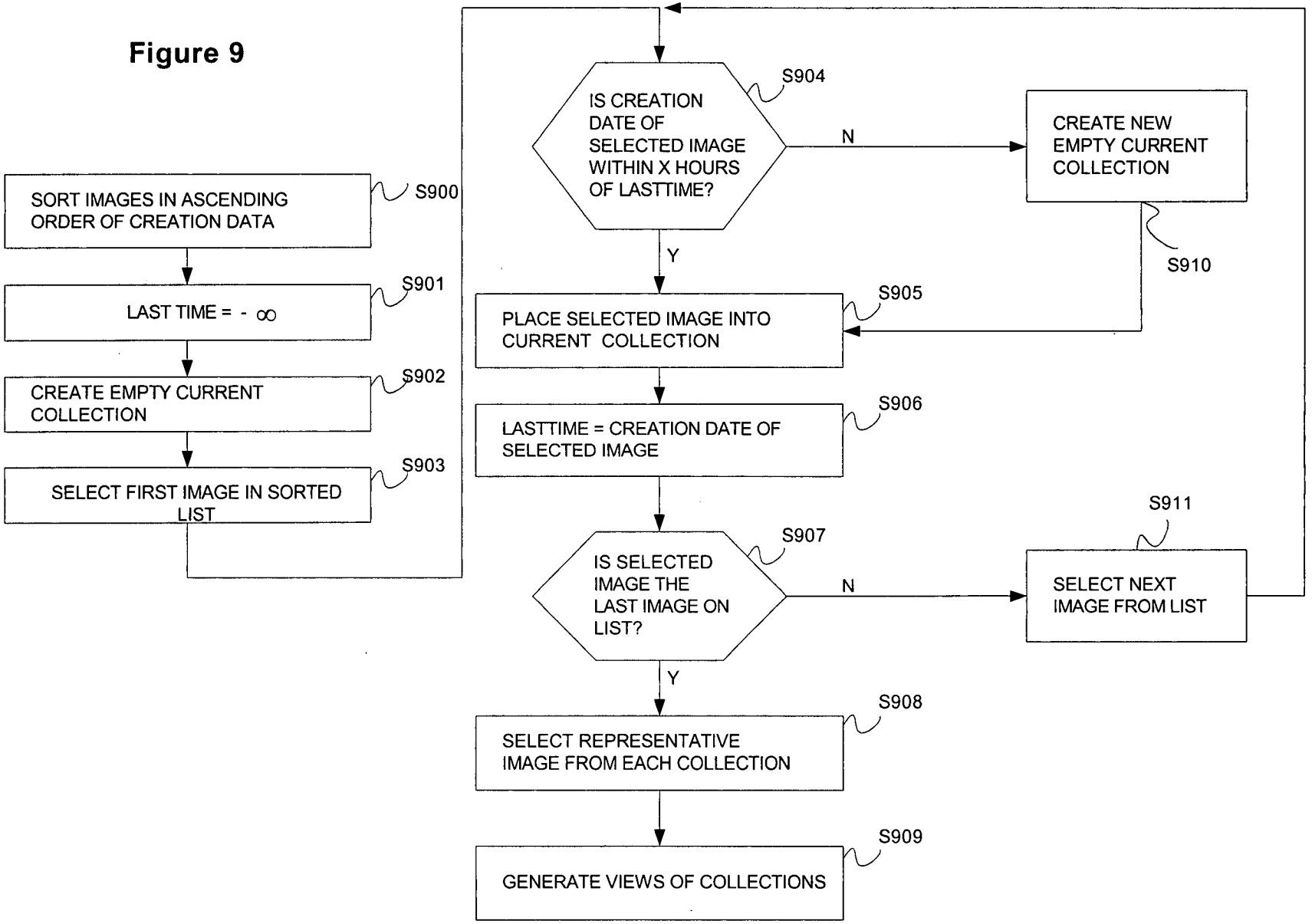

S800
GET SEARCH TERM
S801
DO REFERENCE LOOKUP
S802
DO FULL SEARCH BASED ON REFERENCES
S803
GET RESULT LIST
S804
PRUNE LIST FOR DUPLICATES
S805
DISPLAY LIST

Figure 8

Figure 9


SORT IMAGES IN ASCENDING ORDER OF CREATION DATA
S900
LAST TIME = - ∞
S901
CREATE EMPTY CURRENT COLLECTION
S902
SELECT FIRST IMAGE IN SORTED LIST
S903
IS CREATION DATE OF SELECTED IMAGE WITHIN X HOURS OF LASTTIME?
S904
N
CREATE NEW EMPTY CURRENT COLLECTION
S910
Y
PLACE SELECTED IMAGE INTO CURRENT COLLECTION
S905
LASTTIME = CREATION DATE OF SELECTED IMAGE
S906
IS SELECTED IMAGE THE LAST IMAGE ON LIST?
S907
N
SELECT NEXT IMAGE FROM LIST
S911
Y
SELECT REPRESENTATIVE IMAGE FROM EACH COLLECTION
S908
GENERATE VIEWS OF COLLECTIONS
S909

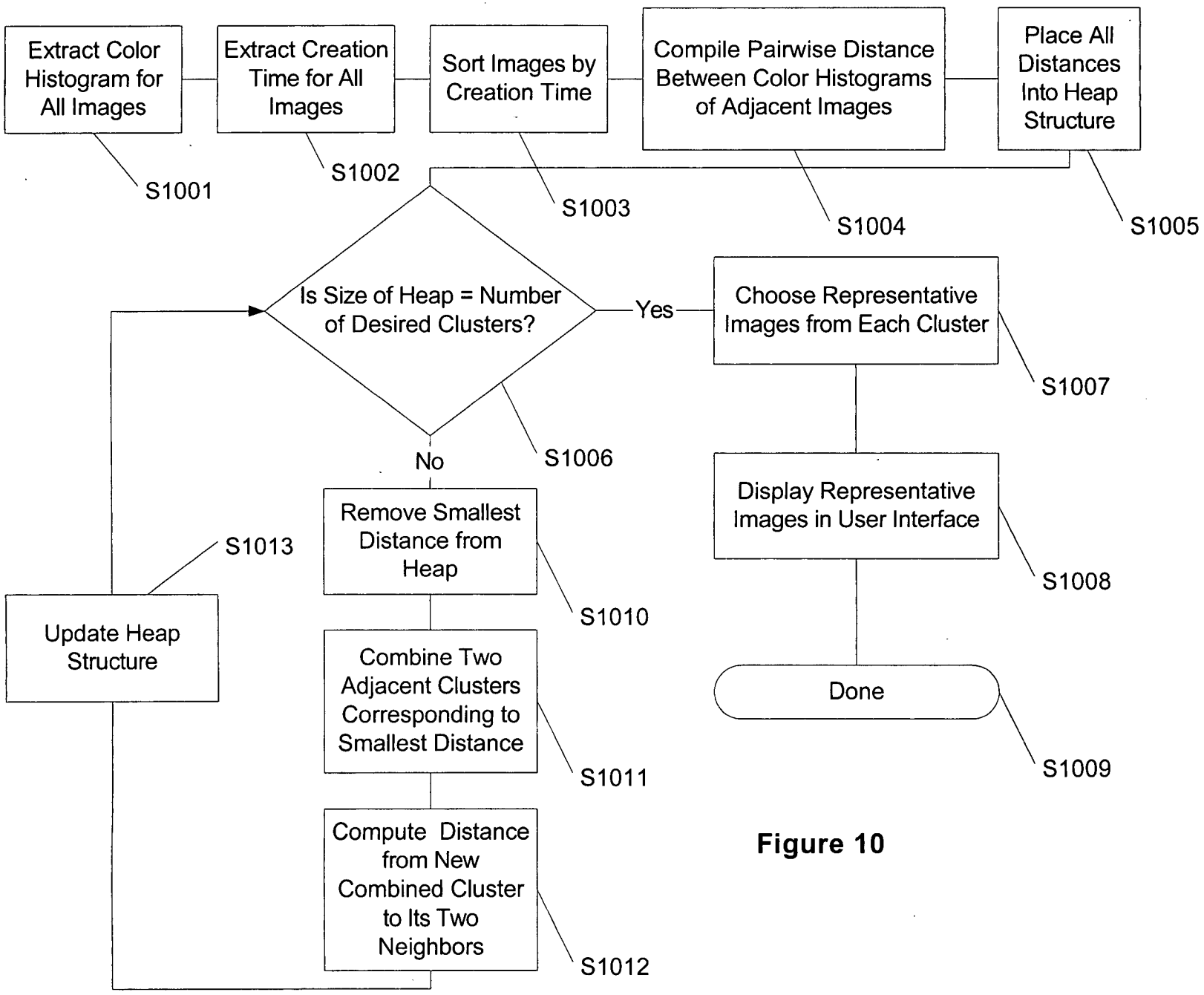

Extract Color Histogram for All Images
Extract Creation Time for All Images
Sort Images by Creation Time
Compile Pairwise Distance Between Color Histograms of Adjacent Images
Place All Distances Into Heap Structure
S1001
S1002
S1003
S1004
S1005
Is Size of Heap = Number of Desired Clusters?
Yes
No
S1006
Choose Representative Images from Each Cluster
S1007
Display Representative Images in User Interface
S1008
Done
S1009
Remove Smallest Distance from Heap
S1010
Combine Two Adjacent Clusters Corresponding to Smallest Distance
S1011
Compute Distance from New Combined Cluster to Its Two Neighbors
S1012
Update Heap Structure
S1013

Figure 10

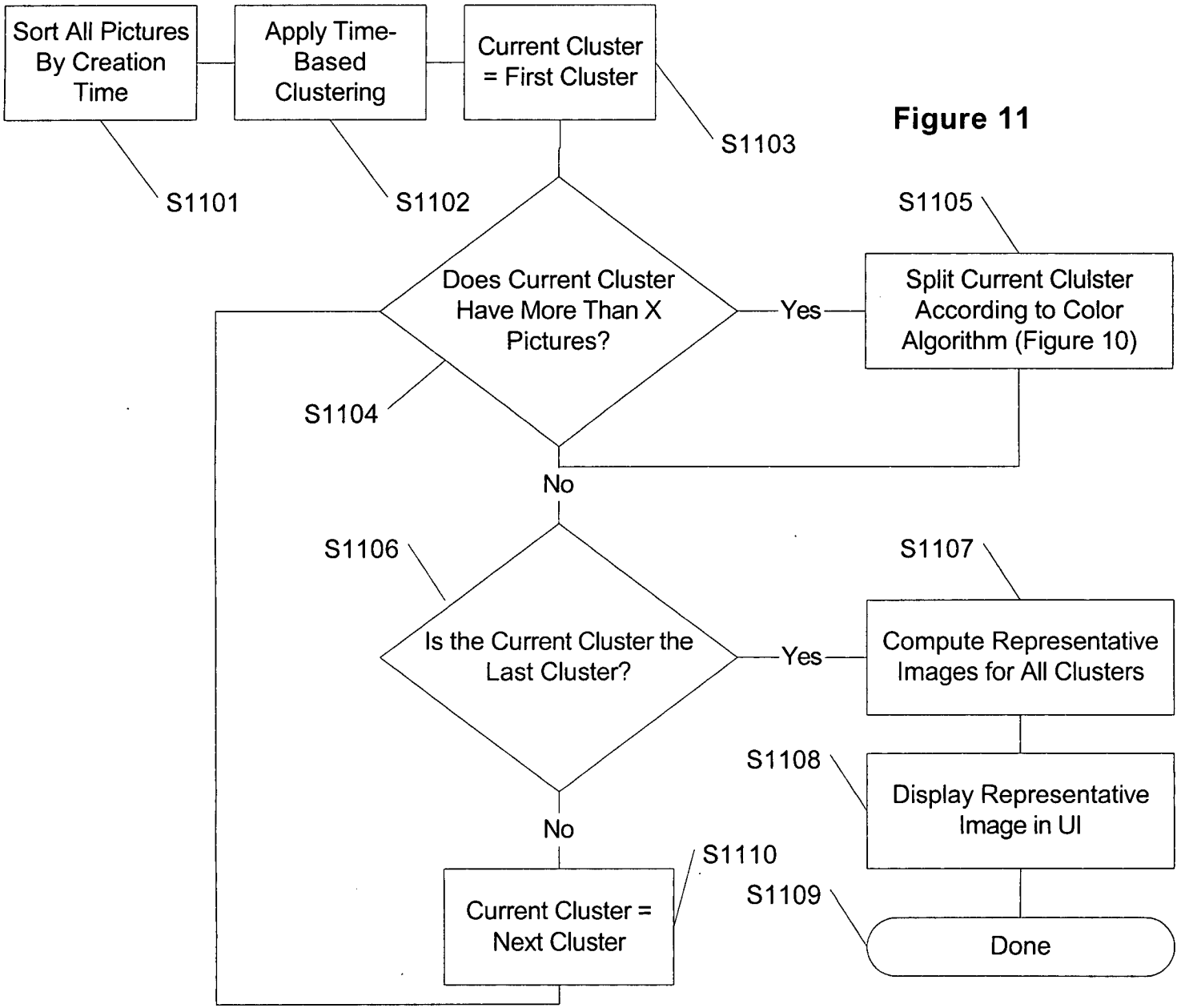

Sort All Pictures By Creation Time
Apply Time-Based Clustering
Current Cluster = First Cluster
S1101
S1102
S1103
Does Current Cluster Have More Than X Pictures?
Yes
S1104
S1105
Split Current Clulster According to Color Algorithm (Figure 10)
No
S1106
Is the Current Cluster the Last Cluster?
Yes
S1107
Compute Representative Images for All Clusters
S1108
Display Representative Image in UI
S1109
Done
No
S1110
Current Cluster = Next Cluster

Figure 11

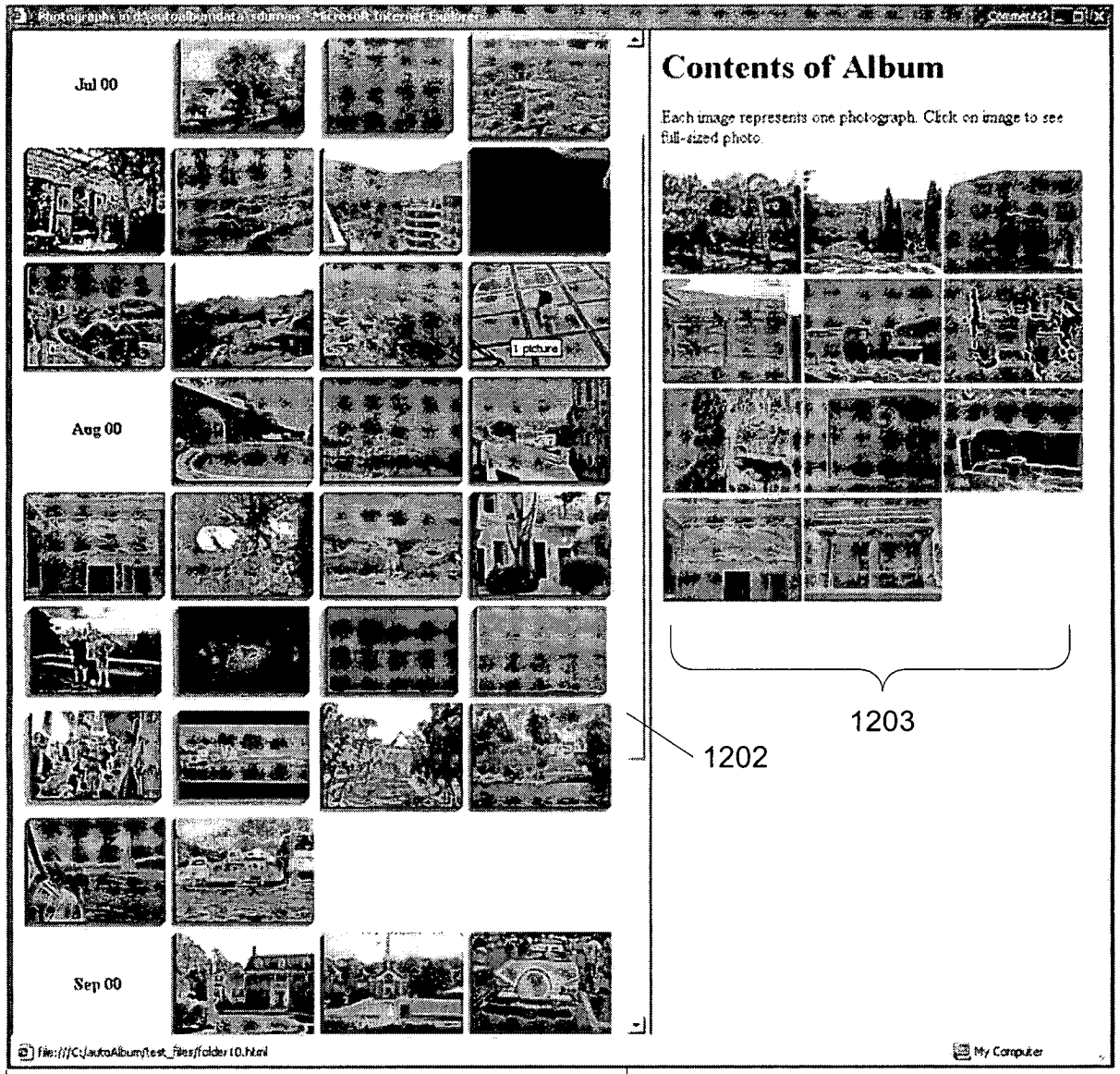

Jul 00
Aug 00
Sep 00
1 picture
Contents of Album
Each image represents one photograph. Click on image to see full-sized photo.
1203
1202
1201

Figure 12

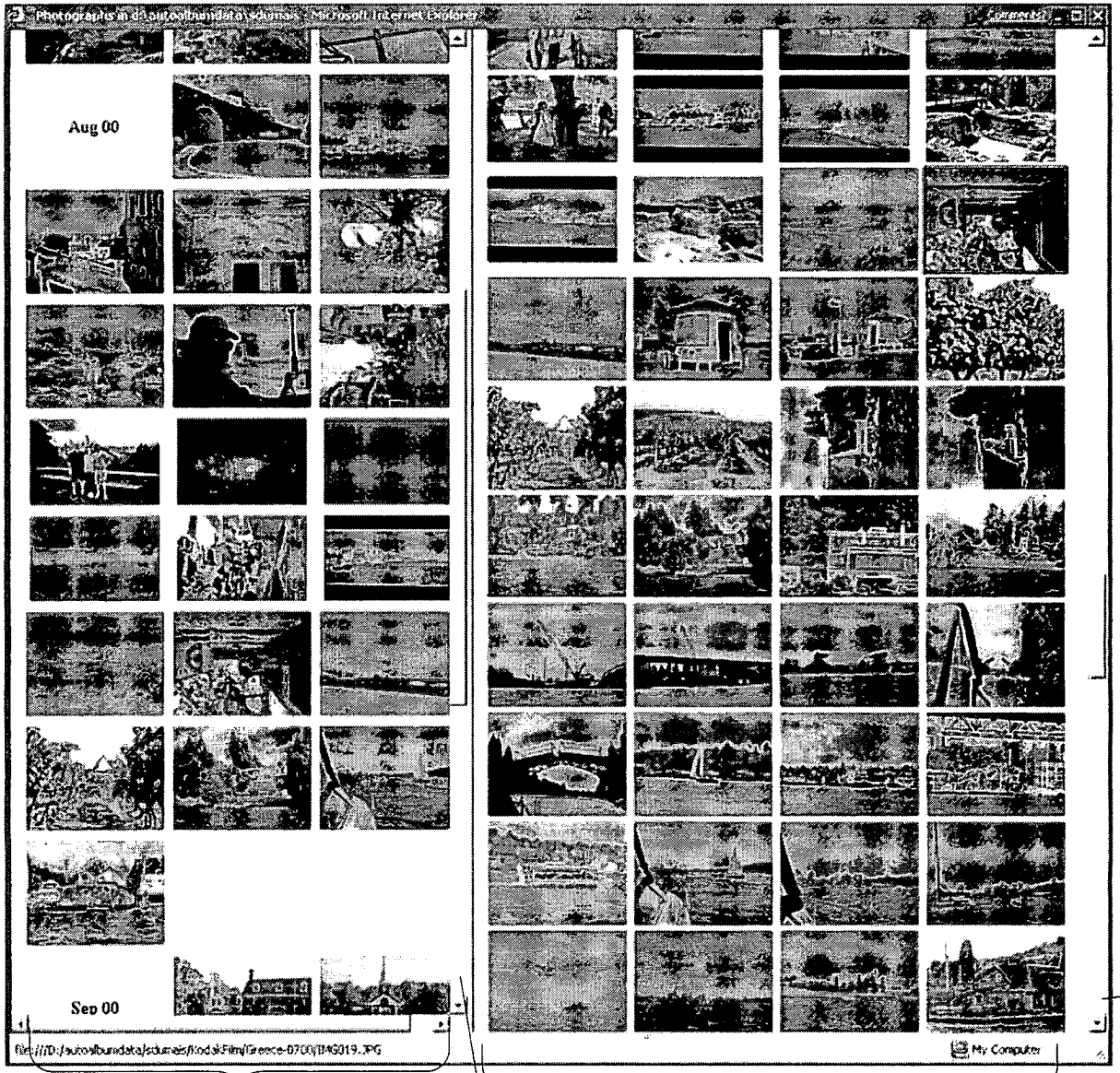


Figure 13